IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	LEROUX et al.
	)	
Title	)	Externally Glazed Article
	)	
Serial Number	)	09/758,741
	)	
Filing Date	)	January 11, 2001
	)	
Art Unit	)	1774
	)	
Examiner	)	Dicus, Tamra
	)	
Attorney Docket No.	)	1366 US

Commissioner for Patents
Washington, D.C. 20231

Sir:

AFFIDAVIT UNDER 37 C.F.R. 1.132

I, Paul Benson, hereby swear and state that:

1. I have been active in the field of ceramics for the last 20 years.

2. I am currently the Worldwide R&D Manager for Carbon-bonded Refractories and Raw Materials for the Vesuvius Group, which has greater than $1 billion in worldwide refractory sales.

3. I hold a Masters Degree in Ceramic Science from The Pennsylvania State University.

4. I am the author or co-author of at least ten papers in the field of ceramic engineering.

5. I hold three patents in the field of ceramic engineering, particularly relating to ceramic articles for use with molten metals.

6. I am very familiar with refractory ceramic compositions and articles that are used in the molten metal industry, including their methods of manufacture.

7. For the last 14 years, I have concentrated on refractory articles for use with molten metal; including refractory shrouds and nozzles.

8. I have supervised numerous experimental and commercial installations of refractory ceramic articles, have witnessed the use of refractory ceramic articles in commercial operation, and am very familiar with the problems arising in various refractory ceramic articles.

9. I am very familiar with slag-line materials commonly known as sleeves as used with casting nozzles in the continuous casting of steel.

10. During casting, a layer of slag floats on the top of molten steel.

11. Continuous casting nozzles discharge steel below the surface and must, therefore, extend through the slag layer.

12. Slag is very corrosive and erosive to most compositions, including such commonly used refractory compounds such as alumina, silica, calcia, and magnesia.

13. Corrosion can cause premature wear of nozzles, which necessitates replacement of the nozzle, disruption of the casting operation, and increased costs.

14. Slag-line sleeves are commonly used to resist the corrosive effect of slag on carbon-bonded refractories.

15. To be effective, slag-line sleeves must comprise slag-resistant compounds, such as zirconium oxide and are commonly about 20 mm or more thick (where the application allows).

16. A nozzle equipped with a slag-line sleeve has a longer casting life than a similar nozzle without a slag-line sleeve.

17. I am also familiar with insulating coatings comprising a ceramic matrix and microspheres as taught by US 6,380,114 to Brandy and US 6,559,082 to Desvignes.

18. These coatings use an organic binder to fix the ceramic matrix and microspheres.

19. The organic binder degrades at temperatures well below steel casting temperatures.

20. The insulating coating becomes non-cohesive as the binder degrades, that is, the coating breaks apart and becomes friable at temperatures well below steel casting temperatures.

21. Furthermore, the insulating coating consists of materials such as alumina, clay and silica, which are not resistant to slag corrosion.

22. One skilled in the art would not use the insulating coating compositions of Brandy or Desvignes as a slag-line sleeve.

23. The insulating coatings of Brandy or Desvignes would not make an effective slag-line sleeve material and would not be a commercially practicable slag-line sleeve.

24. As known in the industry, insulating materials do not provide a good working interface in contact with molten metals or slags due to the nature of their composition.

25. As known in the industry, corrosion resistant materials do not provide the insulation necessary to withstand thermal cycling of such high temperature applications.

26. Often, corrosion resistant materials are used in conjunction with insulating materials to provide a composite effect, but they cannot be used interchangeably for a commercially practicable article.

27. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 1/4/06

Paul Benson
Worldwide Manager for Carbon-based Refractories